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PALATOPLASTY;

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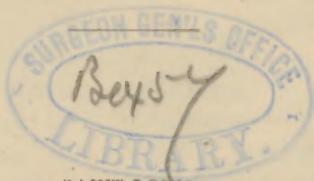
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BY

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OF JACKSONVILLE, ILLS.

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1875.

PALATOPLASTY.

BY DAVID PRINCE, M. D.

Dr. D. Prince, of Jacksonville, Ill., by invitation, introduced the subject of Staphyloraphy, in which he claimed three new points:

1. The employment of galvano-cautery to diminish the loss of blood, and, further, to add facility to the operation and certainty to the result.
2. The introduction of automatic needles, both for the introduction of the platinum wire for cautery and for the taking of the final stitches for the closure of the fissure.
3. A new interpretation of the functions of the muscles in the pillars of the fauces, from which he concludes that their division is not only useless but also injurious to the future completeness of the function of the palate.

He introduced the subject by a brief notice of the nature of cleft palate, hard and soft. The functional defect—what makes the nasal tone, and how it is overcome—the importance of preserving unimpaired the muscles of the palate.

He referred to the division of the pillars of the fauces, as practiced by Fergusson, as endangering the future perfection of function. Previous to the adoption of Fergusson's method, Dieffenbach had made vertical incisions in the soft palate. These incisions do not interfere subsequently with the functional movements of the palate.

(Velpeau by Mott, vol. III, p. 396): "Of the side incisions through the velum, one is made on each side of the cleft, plunging the bistoury in half an inch from it and half an inch distant from either end of the cleft. The bistoury is then carried, with a sawing motion, directly to the hard palate. Considerable blood flows, and the mouth must be washed frequently with cold water."

Dieffenbach recommended that the parallel incisions should

be made after the completion of the sutures. The dangerous hemorrhage liable to occur led to the abandonment of this plan. The galvano-cautery permits us to restore this proceeding of Dieffenbach, and to carry it so far to the lateral base of the palate as to make the incision most effectual, without fear of the loss of blood. Furthermore, we are able to make this the *initiative* proceeding in operations upon the soft palate. By this means the automatic movements of the palate are annulled, and the paring of the edges of the fissure is performed with much greater facility. Even under ether, the half uvula on each side rises and falls with respiration, and the half palate approximates and recedes. The movement, in a great degree, ceases after the vertical incision.

FIG. 1.

The method Galvano-Cautery applicable to the soft palate.

The field is as if up-side down; the soft palate is for convenience conceived as if in a line with the hard palate.

A A, the fissure through the hard palate and the soft.

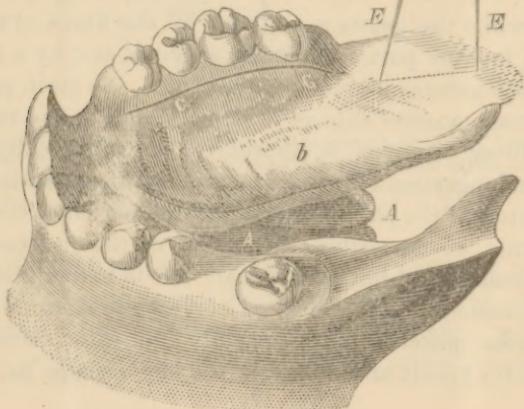
b b and *CC*, lines of incision in the hard palate.

EE, platinum wire in position with the loop on the other side of the membrane to be divided, being thus hidden from view.

The dotted line between the portions of the wire indicates the line of cautery incision.

FF, silver tubes with wood intervening sliding down on the wires to the surface of the palate where the incision is to be made.

The passage of the current is controlled by an interrupter in a pedal. The strength of the current is regulated by the depth to which the plates of the battery are immersed.



The] incision made by Dieffenbach had for its object simply the relief of the strain upon the sutures, and was practiced as the last step in the operation. With the cautery wire, and as a first step, it greatly facilitates the operation, at the same time that all possible strain upon the stitches is prevented.

Still further: these cautery incisions are packed full of oiled paper, which is held there by the sutures in order not only to take the tension off from the sutures, but really to crowd those surfaces together which are expected to unite. These stuffed openings, one on either side, will close up afterward. The crossing of muscular fibres favors this closure.

On the other hand, the muscular fibres all pull away from the median line, making a tendency to become larger instead of smaller. This pull upon the median line is sufficient, after union, to approximate the separated bony arch of the mouth, where there is, at the same time, an opening in the hard palate, making the fissure between the mouth and the nose narrower. This is a reason for closing the soft palate first and the hard palate afterward.

Note was made of the physiological objection to the plan of Fergusson, of dividing the palato-glossus and palato-pharyngis. It is found, by observation upon the movements of the curtain of the palate in halves, that the contractions of both these pairs of muscles approximate the sides of the cleft palate; in one case which was observed, causing the two halves of the uvula to come in contact.

The mode of this will readily be understood by recalling the manner in which the tongue is protruded by the genio-hyo-glossus. So, while the palate is stiffened by the fibres of the tensor palati, the levator palati, the azygos uvulae, and by a few fibres of the palato-glossus and palato-pharyngis, the main portions of these last two muscles engage in approximating the two halves. To cut these muscles is, therefore, physiologically absurd, besides endangering their future functional perfection. Without the action of the palato-pharyngis, the perfect articulation of the gutterals is impossible. The loss of the function of the palato-glossus would not be seriously felt in articulation.

If this reasoning is founded on correct observation, the division of these muscles must speedily go into disuse. Their division is the result of the fear of the hemorrhage arising from

the vertical incisions first made by Dieffenbach. Now that we have a safe way of making these incisions, we may dismiss this fear.

New instruments for sutures were then introduced.)

In an operation beyond the reach of touch by the fingers, great importance attaches to the quality of the instruments employed. The conception of the employment of galvano-cautery and its practice developed the necessity for an instrument capable of the more accurate introduction of a thread or wire than any I was acquainted with.

The needle illustrated in Figure 2 was exhibited, having a slide with a fenestrum closing down over the point of the needle.

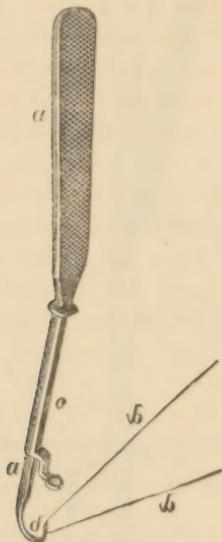


FIG. 2.

a a, a needle curved in the form of a tenaculum with an eye near the point *d*; *b* b, thread; *c*, slide curved at the lower end and fenestrated for the reception of the needle in order to insure the exit of the point of the needle opposite the place of entrance. The thread is to be picked up by a tenaculum.

The possibility of knowing the point of entrance, which is out of sight, and that the point of exit will correspond, is achieved. Importance of this in introducing the platinum wire for cautery—the parts at the lateral base of the palate being thick with

much connective tissue between the muscular layers—was explained. The convenience of the same instrument for the sutures, for permanent retention, was also made clear.

Dr. Black, a dentist of Jacksonville, had made an improvement upon this needle, by which a pick-up pin is made to catch and hold the stitch so that certainty of position and ease of execution are combined. The needles are made in two forms—in one the needle recedes from the operator, and in the other it approaches him. They are illustrated in Figures 3 and 4.

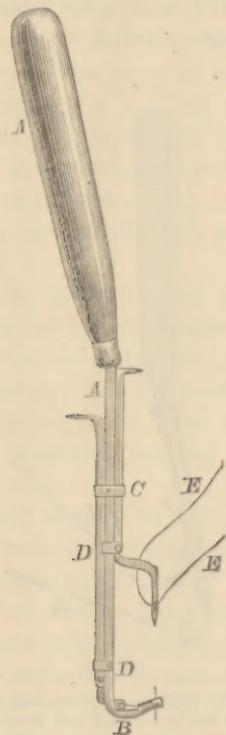


FIG. 3.

Dr. Black's improvement upon Prince's needle, being automatic.

A *A*, a shaft with handle at one end, and hook, *B*, upon the other end fenestrated at the place of the dotted line for the reception of the needle, *C*, which has an eye near its point for the reception of the thread, *E E*.

D, a shaft moving a short stilette in *B* which picks up the thread.

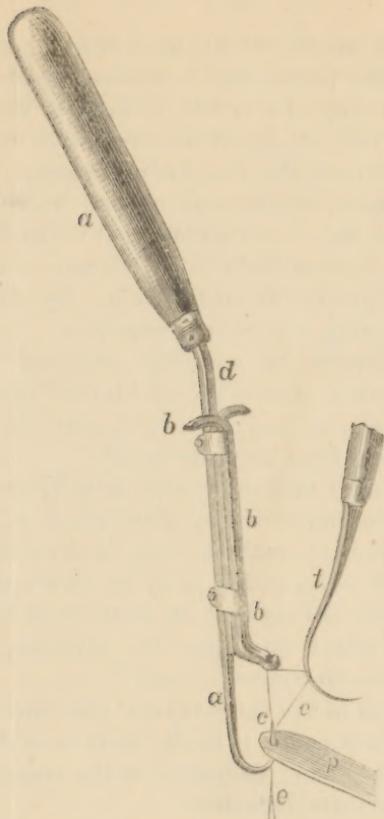


FIG. 4.

Another form of Black's improvement.

a a, shaft with handle and curved needle point as in Fig. 2.

b b, fenestrated slide for the reception of the point of the needle, *c*, holding the thread, *e e*.

p, pasteboard showing the position of the needle having pierced a membrane with the stitch already picked up.

d, the thumb piece of a shaft moving a short stilette in the lower end of *b b* which picks up and holds the stitch.

CLOSURE OF CLEFT OF THE HARD PALATE.

Dr. J. Mason Warren, of Boston, supposed that he was the first to peel the vault of the mouth to obtain the material with which to close a cleft in the hard palate, but it is claimed that (I do not know with how much truth) the expedient is of European origin, by Krimer.

Langenbeck has made this device a new one by the distinct recognition that the periosteum is necessarily peeled from the bone. To him is due the credit of having first recognized the importance of not cutting off the circulation of the flaps by the transverse section of the longitudinal vessels, derived from the descending palatine branches behind and from the naso-palatine in front. - The flap is left undetached in front and behind, while between the extremities it is peeled up and made to slide so as to meet its fellow in the median line. By this precaution, the danger of sloughing is greatly diminished.

Sir William Fergusson has recently practiced what he supposed a new expedient, that of the division of the bony palate by means of a chisel; to find, afterward, that Dieffenbach had practiced the same at least 20 years before.

This is Dieffenbach's method, copied from Velpeau's Surgery (Townsend's translation, edited by Mott, vol. 3, p. 396):

"He punches a hole through the edge of the cleft, and inserts a thick, soft silver wire, which is to be drawn and twisted as close as can be, after having first cut down upon and separated the palate bones, where they join the alveolar processes, by means of a thin, smooth concave chisel."

When the division of the three layers (two membranous and one bony) of the hard palate is made, there is evidently greatly increased exemption from gangrene, as the vessels of the palatine vault are very little disturbed.

It is found, by experience, that the openings along the alveolar border have a strong tendency to close by the process of granulation. The knowledge of this tendency makes the operator bold to bring the two sides of the arch together, without fear of the openings which he leaves alongside of the alveolar ridge.

Dr. Prince referred to a case of unilateral cleft in the hard palate, with median cleft of the soft palate, in which, after previous closure of the soft palate, the chisel was employed to separate the bony arch of the mouth from the alveolar process on the same side with the cleft, while, on the opposite side, the periosteum was peeled up. Sutures retained the two flaps in contact, and the roof of the mouth became permanently closed. Several months elapsed between the operation upon the soft palate and the subsequent closure of the hard palate, and it was found that, during this interval, the width of the cleft had considerably diminished.